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CLAIM AMENDMENTS

Claim Amendment Summary

Claims pending

- At time of the Action: Claims 1-57.
- After this Response: Claims 1-57.

Canceled or Withdrawn claims: none.

Amended claims: 45.

New claims: none

Claims:

1. (ORIGINAL) A method comprising:
dynamically determining present members of a load-balancing cluster;
monitoring application-layer availability of one or more members of the
cluster as such availability is observed from a client-perspective.
2. (ORIGINAL) A method as recited in claim 1 further comprising
exoclusterly controlling activity state of the members of the cluster.
3. (ORIGINAL) A method as recited in claim 1 further comprising
exoclusterly and selectively deactivating one or more active members of the
cluster.

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Serial No.: 09/740,720
Atty Docket No.: MSI-681US
RESPONSE TO NON-FINAL OFFICE ACTION DATED
4/07/2004

2

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1 4. (ORIGINAL) A method as recited in claim 1 further comprising,
2 based upon the monitoring, identifying one or more active members of the cluster
3 that are presently overwhelmed at the application-layer.

4
5 5. (ORIGINAL) A method as recited in claim 1 further comprising:
6 based upon the monitoring, identifying one or more active members of the
7 cluster that are presently overwhelmed at the application-layer;
8 exocusterly deactivating one or more members identified by the
9 identifying.

10
11 6. A method as recited in claim 1 further comprising exocusterly and
12 selectively activating one or more inactive members of the cluster.

13
14 7. (ORIGINAL) A method as recited in claim 1 further comprising,
15 based upon the monitoring, identifying one or more inactive members of the
16 cluster that are not presently overwhelmed at the application-layer.

17
18 8. (ORIGINAL) A method as recited in claim 1 further comprising:
19 based upon the monitoring, identifying one or more inactive members of
20 the cluster that are not presently overwhelmed at the application-layer;
21 exocusterly activating one or more members identified by the identifying.

22
23 9. (ORIGINAL) A method as recited in claim 1 further comprising:
24 based upon the monitoring, identifying one or more active members of the
25 cluster that are presently overwhelmed at the application-layer and identifying one

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3

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1 or more inactive members of the cluster that are not presently overwhelmed at the
2 application-layer;

3 exocusterly deactivating one or more active members identified by the
4 identifying;

5 exocusterly activating one or more inactive members identified by the
6 identifying.

7
8 10. (ORIGINAL) A method as recited in claim 1 further comprising
9 determining a present activity state of members of the cluster.

10
11 11. (ORIGINAL) A method as recited in claim 1 further comprising:
12 determining a present activity state of members of the cluster;
13 tracking and persisting the activity states of the members of the cluster.

14
15 12. (ORIGINAL) A method as recited in claim 11, wherein the activity
16 states include cluster states.

17
18 13. (ORIGINAL) A method as recited in claim 11 further comprising
19 reporting a present activity state of one or more members of the cluster.

20
21 14. (ORIGINAL) A method as recited in claim 11 further comprising
22 reporting historical record of the activity states of one or more members of the
23 cluster.
24
25

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07/01/04

4

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1 15. (ORIGINAL) A method as recited in claim 11 further comprising
2 reporting a present application-layer state of one or more members of the cluster.

3
4 16. (ORIGINAL) A method as recited in claim 11 further comprising
5 reporting historical record of the application-layer states of one or more members
6 of the cluster.

7
8 17. (ORIGINAL) A method as recited in claim 1, wherein the
9 monitoring comprises monitoring in one or more different application-layer
10 protocols.

11
12 18. (ORIGINAL) A method as recited in claim 1, further comprises,
13 based upon the monitoring, determining the application-layer availability of one or
14 more members based upon a indicator of such availability, the indicator sent from
15 a member being monitored.

16
17 19. (ORIGINAL) A method as recited in claim 1, further comprises:
18 based upon the monitoring, determining the application-layer availability of
19 one or more members based upon a indicator of such availability, the indicator
20 sent from a member being monitored;
21 the member being monitored determining such availability and generating
22 such indicator.

1 20. (ORIGINAL) A computer-readable medium having computer-
2 executable instructions that, when executed by a computer, perform the method as
3 recited in claim 1.

4
5 21. (ORIGINAL) A method comprising:
6 monitoring application-layer availability of members of a load-balancing
7 cluster as such availability is observed from a client-perspective;
8 exocusterly controlling activity state of the members of the cluster.

9
10 22. (ORIGINAL) A method as recited in claim 21, wherein the
11 controlling comprises selectively deactivating one or more active members of the
12 cluster.

13
14 23. (ORIGINAL) A method as recited in claim 21, wherein the
15 controlling comprises, based upon the monitoring, identifying one or more active
16 members of the cluster that are presently overwhelmed at the application-layer.

17
18 24. (ORIGINAL) A method as recited in claim 21, wherein the
19 controlling comprises:

20 based upon the monitoring, identifying one or more active members of the
21 cluster that are presently overwhelmed at the application-layer;

22 exocusterly deactivating one or more members identified by the
23 identifying.

1 25. (ORIGINAL) A method as recited in claim 21, wherein the
2 controlling comprises selectively activating one or more inactive members of the
3 load-balancing cluster.
4

5 26. (ORIGINAL) A method as recited in claim 21, wherein the
6 controlling comprises, based upon the monitoring, identifying one or more
7 inactive members of the cluster that are not presently overwhelmed at the
8 application-layer.
9

10 27. (ORIGINAL) A method as recited in claim 21, wherein the
11 controlling comprises:

12 based upon the monitoring, identifying one or more inactive members of
13 the cluster that are not presently overwhelmed at the application-layer;
14 exocusterly activating one or more members identified by the identifying.
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11/17/2004

7

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1
2 **28. (ORIGINAL)** A method as recited in claim 21, wherein the
3 controlling comprises:

4 based upon the monitoring, identifying one or more active members of the
5 cluster that are presently overwhelmed at the application-layer and identifying one
6 or more inactive members of the cluster that are not presently overwhelmed at the
7 application-layer;

8 exocusterly deactivating one or more active members identified by the
9 identifying;

10 exocusterly activating one or more inactive members identified by the
11 identifying.

12
13 **29. (ORIGINAL)** A method as recited in claim 21 further comprising
14 determining a present activity state of the members of the cluster.

15
16 **30. (ORIGINAL)** A method as recited in claim 21 further comprising:
17 determining a present activity state of the members of the cluster;
18 tracking and persisting the activity states of the members of the cluster.

19
20 **31. (ORIGINAL)** A method as recited in claim 30, wherein the activity
21 state includes a cluster state.

22
23 **32. (ORIGINAL)** A method as recited in claim 30 further comprising
24 reporting a present activity state of one or more members of the cluster.

1 33. (ORIGINAL) A method as recited in claim 30 further comprising
2 reporting historical record of the activity states of one or more members of the
3 cluster.

4
5 34. (ORIGINAL) A method as recited in claim 30 further comprising
6 reporting a present application-layer state of one or more members of the cluster.

7
8 35. (ORIGINAL) A method as recited in claim 30 further comprising
9 reporting historical record of the application-layer states of one or more members
10 of the cluster.

11
12 36. (ORIGINAL) A method as recited in claim 21, wherein the
13 monitoring comprises monitoring in one or more different application-layer
14 protocols.

15
16 37. (ORIGINAL) A computer-readable medium having computer-
17 executable instructions that, when executed by a computer, performs the method
18 as recited in claim 21.

19
20 38. (ORIGINAL) A computer-readable medium having computer-
21 executable instructions that, when executed by a computer, perform a method
22 comprising:

23 dynamically determining present members of a load-balancing cluster and
24 an activity state of each member;

25

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9

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1 monitoring application-layer availability of the one or more members of the
2 cluster as such availability is observed from a client-perspective;

3 exocusterly controlling the activity state of the members of the cluster.
4

5 39. (ORIGINAL) A system comprising:

6 a dynamic cluster-membership determiner configured to exocusterly and
7 dynamically determine present members of a load-balancing cluster;

8 an exocuster monitor configured to monitor application-layer availability
9 of the present members of the cluster.
10

11 40. (ORIGINAL) A system as recited in claim 39 further comprising an
12 exocuster controller configured to control an activity state of the members of the
13 cluster.
14

15 41. (ORIGINAL) A system as recited in claim 39 further comprising an
16 overload-identifier configured to identify, based upon the monitored availability,
17 one or more active members of the cluster that are presently overwhelmed at the
18 application-layer.
19

20 42. (ORIGINAL) A system as recited in claim 39 further comprising an
21 overload-identifier configured to identify, based upon the monitored availability,
22 one or more inactive members of the cluster that are not presently overwhelmed at
23 the application-layer.
24
25

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1 43. (ORIGINAL) A system as recited in claim 39 further comprising a
2 state-determiner configured to determine a present activity state of members of the
3 cluster.

4
5 44. (ORIGINAL) A system as recited in claim 39 further comprising:
6 a state-determiner configured to determine a present activity state of
7 members of the cluster;
8 a database configured to store the activity states of the members of the
9 cluster.

10
11 45. (CURRENTLY AMENDED) A system as recited in claim 39, wherein
12 the ~~monitor~~ exocluster monitor is protocol agnostic.

13
14 46. (ORIGINAL) A system comprising:
15 an exocluster monitor configured to monitor application-layer availability
16 of members of a load-balancing cluster from a client-perspective;
17 an exocluster controller configured to control an activity state of members
18 of the cluster.

19
20 47. (ORIGINAL) A system as recited in claim 46, wherein the exocluster
21 controller is further configured to exocusterly and selectively deactivate one or
22 more active members of the cluster.
23
24
25

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11

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1 48. (ORIGINAL) A system as recited in claim 46 further comprising an
2 overload-identifier configured to identify, based upon the monitored availability,
3 one or more active members of the cluster that are presently overwhelmed at the
4 application-layer.

5
6 49. (ORIGINAL) A system as recited in claim 46, wherein the exocuster
7 controller is further configured to exocusterly and selectively activate one or more
8 inactive members of the cluster.

9
10 50. (ORIGINAL) A system as recited in claim 46 further comprising an
11 overload-identifier configured to identify, based upon the monitored availability,
12 one or more inactive members of the cluster that are not presently overwhelmed at
13 the application-layer.

14
15 51. (ORIGINAL) A system as recited in claim 46 further comprising a
16 state-determiner configured to determine a present activity state of the members of
17 the cluster.

18
19 52. (ORIGINAL) A system as recited in claim 46 further comprising:
20 a state-determiner configured to determine a present activity state of the
21 members of the cluster;
22 a database configured to store the activity states of the members of the
23 cluster.

1 **53. (ORIGINAL)** A system as recited in claim 46, wherein the monitor is
2 protocol agnostic.

3
4 **54. (ORIGINAL)** A dynamic, active, exocluster monitoring system for
5 monitoring application-layer availability of members of a load-balancing cluster
6 and controlling an activity state of such members, the monitoring system
7 comprising:

8 an app-monitor configured to exoclusterly monitor the members of the
9 cluster from a client-perspective;

10 a cluster-control configured to exoclusterly determine the activity state of
11 the members of the cluster and to exoclusterly control the activity state of the
12 members of the cluster;

13 a central controller configured to coordinate and control the app-monitor
14 and the cluster-control.

15
16 **55. (ORIGINAL)** A system as recited in claim 54 further comprising a
17 database configured to store state change information, including cluster state and
18 application-layer state.

19
20 **56. (ORIGINAL)** A system as recited in claim 54 further comprising
21 multiple app-monitors.

22
23 **57. (ORIGINAL)** A system as recited in claim 54 further comprising
24 multiple cluster-controls.

25

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Serial No.: 09/740,720
Atty Docket No.: MS1-681US
RESPONSE TO NON-FINAL OFFICE ACTION DATED
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13

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